

**AMENDMENT**

**Amendments to the Specification:**

Following the abstract, please insert the enclosed Substitute Sheets as replacement pages 1 through 8 of the Sequence Listing submitted previously for the above-referenced patent application.

Please replace paragraph [0022] with the following amended paragraph:

[0022] FIG. 13 shows the individual oligonucleotide components of the nano-barcode of FIG. 12. Note that, as shown in FIG. 12, there are 9 fragments (labeled PT1 to PT9, in order), which correspond to the underlined segments of sequences represented in FIG. 14 (SEQ ID NOS:3 to 11) used to make the top strand of the nano-barcode and 4 fragments (labeled #1 to #4) used to make the bottom strand (SEQ ID NOS:12 to 15). PT1 corresponds to residue numbers 1-30 of SEQ ID NO:3. PT2 corresponds to residue numbers 11-40 of SEQ ID NO:4. PT3 corresponds to residue numbers 21-60 of SEQ ID NO:5. PT4 corresponds to residue numbers 11-40 of SEQ ID NO:6. PT5 corresponds to residue numbers 21-60 of SEQ ID NO:7. PT6 corresponds to residue numbers 11-40 of SEQ ID NO:8. PT7 corresponds to residue numbers 21-60 of SEQ ID NO:9. PT8 corresponds to residue numbers 11-40 of SEQ ID NO:10. PT9 corresponds to residue numbers 22-61 of SEQ ID NO:11. The 9 fragments (labeled PT1 to PT9) The hybridized nano-barcode exhibits branch points detectable by scanning probe microscopy.

Please replace Table 3 with the following amended Table 3:

**Table 3: Exemplary Subunits for Polymer Decoration**

Tag Element	Mono-functionalized	Attachment to Polymer Subunit	Polymer Sequence
C60	C60COOH	Lysine	NH <sub>2</sub> -(Gly-Gly-Gly-Lys) <sub>8</sub> -COOH ( <a href="#">SEQ ID NO:16</a> )
C60	C60COOH	Lysine	NH <sub>2</sub> -(A-A-A-A-A-A-K)[[7]] <sub>7</sub> -COOH ( <a href="#">SEQ ID NO:17</a> )
C70	C70COOH	Lysine	NH <sub>2</sub> -(Gly-Gly-Gly-Lys) <sub>8</sub> -COOH ( <a href="#">SEQ ID NO:16</a> )
C70	C70COOH	Lysine	NH <sub>2</sub> -(A-A-A-A-A-A-K) <sub>7</sub> -COOH ( <a href="#">SEQ ID NO:17</a> )
La Buckey	LA Bucky COOH	Lysine	NH <sub>2</sub> -(Gly-Gly-Gly-Lys) <sub>8</sub> -COOH ( <a href="#">SEQ ID NO:16</a> )
La Buckey	LA Bucky COOH	Lysine	NH <sub>2</sub> -(A-A-A-A-A-A-K) <sub>7</sub> -COOH ( <a href="#">SEQ ID NO:17</a> )
C60	C60COOH	Ethyl amino Thymidine (X)	5'-(T-X)10-3'
C60	C60COOH	Ethyl amino Thymidine (X)	5'-(X-Q) where Q is 12 atom spacer
C70	C70COOH	Ethyl amino Thymidine (X)	5'-(T-X)10-3'
C70	C70COOH	Ethyl amino Thymidine (X)	5'-(X-Q) where Q is 12 atom spacer
La Buckey	LA Bucky COOH	Ethyl amino Thymidine (X)	5'-(T-X)10-3'
La Buckey	LA Bucky COOH	Ethyl amino Thymidine (X)	5'-(X-Q) where Q is 12 atom spacer
(NH <sub>2</sub> ) <sub>8</sub> POSS	NA	Glutamic or aspartic acid	NH <sub>2</sub> -(Gly-Gly-Gly-Glu) <sub>8</sub> -COOH ( <a href="#">SEQ ID NO:18</a> )
(NH <sub>2</sub> ) <sub>8</sub> POSS	NA	Glutamic or aspartic acid	NH <sub>2</sub> -(A-A-A-A-A-E) <sub>7</sub> -COOH ( <a href="#">SEQ ID NO:19</a> )
(NH <sub>2</sub> ) <sub>8</sub> POSS	NA	T carboxylate analog (Y)	5'-(T-Y)10-3'
Metal Phalocyanine	COOH	Lysine	NH <sub>2</sub> -(A-A-A-A-A-A-K) <sub>7</sub> -COOH ( <a href="#">SEQ ID NO:17</a> )
Metal Phalocyanine	COOH	Lysine	NH <sub>2</sub> -(Gly-Gly-Gly-Lys) <sub>8</sub> -COOH ( <a href="#">SEQ ID NO:16</a> )

Please replace Table 4 with the following amended Table 4:

**Table 4. Exemplary Subunits for Direct Polymer Imaging**

Subunit	Polymer
Lysine (K)	(A <sub>6</sub> -K) <sub>8</sub> or (AAKAAAK) <sub>4</sub> or KKKKKKKK (SEQ ID NOS: 20-22)
Glutamic acid (E)	(A <sub>6</sub> -E) <sub>8</sub> or (AAEAAAE) <sub>4</sub> or EEEEEEE (SEQ ID NOS: 23-25)
E and K	(AAKAAAE) <sub>4</sub> (SEQ ID NO:26)
Br-T (Br)	T-Br-T-Br-TTT-Br-TTT-Br-Br-T
NH <sub>2</sub> -T (N)	T-N-T-N-TTT-N-TTT-N-N-T
Br and N	T-Br-T-N-T-Br-Br-TTT-N-N-Br-T
Phosphate and spacers	TTT-3-9-3-3-9-9-3-9